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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RICHARD L. COPELAND, BRENT F. BALCH,
STEVEN W. EMBLING, WILLIAM M. FARRELL,
and STEWART E. HALL

Appeal 2009-003206
Application 10/ 037,337
Technology Center 2600

Before THOMAS S. HAHN, CARL W. WHITEHEAD, JR., and
BRADLEY W. BAUMEISTER, *Administrative Patent Judges*.

HAHN, *Administrative Patent Judge*.

DECISION ON APPEAL¹

Appellants invoke our review under 35 U.S.C. § 134(a) from the final rejection of claims 12-32.² We have jurisdiction under 35 U.S.C. § 6(b). We affirm-in-part.

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

STATEMENT OF THE CASE

Appellants claim an antenna and method for detecting electronic article surveillance (EAS) markers. The antenna has a coil wrapped around a portion of a core formed from first and second outer members positioned about a central member that extends beyond an end portion of one of the first and second members.³ Claim 16 is illustrative:

16. An antenna for use in an electronic article surveillance system, said antenna comprising:

a core comprising a central member disposed between a first outer member and a second outer member, wherein at least a portion of said central member extends beyond an end portion of one of said first and second outer members; and

a coil winding disposed around at least a portion of said core.

The Examiner relies on the following prior art references to show unpatentability:

Davies	US 5,345,222	Sep. 6, 1994
Martinides	US 5,371,490	Dec. 6, 1994
Yoshizawa	US 5,567,537	Oct. 22, 1996
Balch	US 6,118,378	Sep. 12, 2000

The Examiner, under 35 U.S.C. § 103(a), rejected:

1. Claims 16-19 as unpatentable over Davies (Ans. 4-5);
2. Claims 12-15, 20-25, and 32 as unpatentable over Davies and Yoshizawa (Ans. 5-9);

² Claim 4 is also pending and is reported as being allowed (Final Action, Office Action Summary, mailed Dec. 28, 2004).

³ See generally Spec. 5:1 - 6:27; Figs. 1-5.

3. Claims 26-29 and 31 as unpatentable over Davies, Yoshizawa, and Balch (Ans. 9-10); and
4. Claims 28-31 as unpatentable over Davies, Yoshizawa, and Martinides (Ans. 10-11).

APPELLANTS' CONTENTIONS

Appellants separately argue independent claim 16 from grouped claims 16-19 (Br. 4-7). Accordingly, we select claim 16 as representative for this group pursuant to our authority under 37 C.F.R. § 41.37(c)(1)(vii). Specifically, Appellants contend that Davies fails to teach or suggest an antenna “core comprising a central member disposed between a first outer member and a second outer member” as recited in claim 16.

Appellants group claims 20-22 and also group claims 23-25 (Br. 9-12). Both of these groups are rejected as being obvious over Davies and Yoshizawa (Ans. 5-7 and 9). From these two groups Appellants respectively select and argue the patentability of independent claims 20 and 23 (Br. 9). Appellants contend that for both of these claims there is no motivation to combine Yoshizawa's thin film antenna core material with Davies antenna detection system (Br. 9-11).

Alternatively, Appellants contend that even if Davies and Yoshizawa are combined, the resulting antenna would not be large enough to generate “an electromagnetic field for interrogation and detection of electronic article surveillance markers” as recited in claim 23 (Br. 11-12).

Appellants separately argue dependent claim 32 with the assertion that Yoshizawa fails to teach or suggest an antenna having the recited Q value of “less than or equal to about 20” (Br. 12-14).

ISSUES

The pivotal issues raised by the Appellants' contentions are:

1. Did the Examiner err, under § 103(a), in finding that Davies teaches or suggests an antenna “core comprising a central member disposed between a first outer member and a second outer member” as recited in representative claim 16?
2. Did the Examiner err in combining Davies and Yoshizawa, under § 103(a), because there is no motivation or suggestion to combine these references?
3. If the Examiner did not err in combining Davies and Yoshizawa, would the modification of Davies provide an antenna that is large enough to generate “an electromagnetic field for interrogation and detection of electronic article surveillance markers” as recited in claim 23?
4. Did the Examiner err, under § 103(a), in finding that Yoshizawa teaches or suggests an antenna having a Q value “less than or equal to about 20” as recited in dependent claim 32?

PRINCIPLE OF LAW

The scope of examined claim limitations is determined by giving the terms in the claims their ordinary and accustomed meaning while interpreting the claims as broadly as is reasonable and consistent with the specification. *See In re Thrift*, 298 F.3d 1357, 1364 (Fed. Cir. 2002).

“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning

with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F3d 977, 988 (Fed. Cir. 2006).

ANALYSIS

Claims 12-19

We do not agree with the Examiner that Davies teaches or suggests an antenna “core comprising a central member disposed between a first outer member and a second outer member” as recited in representative claim 16.

The Examiner, after acknowledging that Davies does not disclose the claimed first and second outer members, reasons that:

[I]t would have been obvious to one of ordinary skill in the art at the time of the claimed invention that [Davies’] wrap-around member 53 would have functioned the same as separate top and bottom members in an antenna . . . , since the wrap-around member 53 can conceptually be separate top and bottom members joined at their seams, or integrated, at the two side edges, and thus the antenna in Davies et al. can alternatively be formed by two separate top and bottom members 53 sandwiching the central member 54 without unexpected result.

(Ans. 4.) Appellants contest this reasoning by pointing out that:

Davies emphasizes that box 42 is a “flux-containing box”, and currents induced in the box “counter the emergence of magnetic flux along the length of the box.[”] [Davies, col. 5, lines 1-5]. The figures showing the “wrap-around” design of box 42 and layers 53, which are the only embodiments disclosed in Davies, clearly illustrate that the sole purpose of the wrap-around design is to counter the emergence of magnetic flux. Substituting a core that is not of a wrap-around design, and which instead comprises a central member, a first (upper) outer member and a second (lower) member, is clearly outside of the intended purpose and use of the box described in Davies.

(Br. 7.)

We agree with the Appellants that the Davies' box 42 is disclosed as being a magnetic flux-containing box. We further agree that Davies discloses that such a "box may consist of one or more insulated layers 53 of copper or aluminum sheet wound on an insulating form[] . . . (FIG. 5)" (column 5, lines 6-20).

The Examiner effectively acknowledges that the Davies' wrap-around member 53 is disclosed as being a flux-containing box, and indicates that:

The rejection is made under the rationale that one skilled in the art would have recognized that the wrap-around member of Davies et al. could be implemented by conjoining 2 separate top/first and bottom/second members. For example[], conjoining could be by adhesive, bonding, or other well known methods, that would still maintain the intended flux conduction purpose by using the appropriate materials and methods. This is a case of integrated versus separate parts, which has antecedence as deemed obvious. Suggestion for such well known concepts of alternatives as integrated versus separate parts need not come directly from the cited prior art references themselves, but rather can also be based on common knowledge, common sense, logic, and/or the skill level of one of ordinary skill in the art. It is further noted that the claims did not expressly recite the first and second members are being "discrete" as appellant has argued, and as far as whether the Davies wrap-around member would perform in the same manner as the claimed device, the claims did not specify the exact role of the first and second members other than their location and generally being part of the overall antenna core.

(Ans. 11-12.)

Representative claim 16 recites "a core comprising a central member disposed between a first outer member and a second outer member."

Utilizing ordinary and accustomed meanings for the recited terms (*see Thrift*, 298 F.3d at 1364), we find the claim covers a core that has three

parts, i.e., a central core, a first outer member, and a second outer member. Based on the record, we do not find evidence and/or articulated reasoning with supporting rationale to sustain the Examiner's conclusion that an ordinarily skilled artisan would be motivated to modify Davies' wrap-around box 53 to provide two parts for a core, while also maintaining the taught integrated magnetic flux-containing box structure. Accordingly, we do not agree with the Examiner. *See Kahn*, 441 F.3d at 988.

For the foregoing reasons, we will not sustain the rejection of representative claim 16 and we, therefore, also will not sustain the rejection of the other grouped claims 17-19.

Appellants separately argue independent claim 12 from grouped claims 12-15 (Br. 8-9). Claim 12 is rejected as being obvious over Davies and Yoshizawa (Ans. 8), and Appellants rely on the arguments asserted for claim 16 that Davies fails to teach or suggest the recited "core compris[ing] . . . a first outer member and a second outer member" (Br. 8-9). For the reasons addressed *supra*, we agree with Appellants. Further, Appellants contend that Yoshizawa fails to cure the Davies deficiencies (Br. 9), and based on our review we agree with Appellants. Accordingly, we also will not sustain the rejection of claims 12-15.

Claims 20-29 and 31

I

Appellants argue the patentability of independent claims 20 and 23 for grouped claims 20-25, which are rejected as being obvious over Davies and Yoshizawa (Br. 9). Specifically, Appellants contend that there is no motivation to combine Yoshizawa's thin film antenna core material with

Davies antenna detection system (Br. 9-11). We find Appellants' argument to be unavailing.

According to the Examiner:

[I]t would have been obvious . . . to use the specific type of core material and coil antenna construction such as taught by Yoshizawa et al. for implementing the interrogation/detection coil antenna of a system such as taught by Davies et al. in order to provide the intended antenna function (i.e., providing the intended EAS interrogation function) but at a minimized size (within the design constraint of still retaining the intended EAS interrogation function), wherein such minimized antenna size is desirable in various EAS applications by minimizing the physical presence, and thereby the associated physical and psychological intrusiveness and unsightliness of the system in typical application environments such as business establishments.

(Ans. 6.) Appellants do not contest the Examiner's above relied on findings from Davies and Yoshizawa, but, instead, contend that:

Because the purpose of the core disclosed in Yoshizawa is to *reduce* the size of the antenna, Appellant[s] submit[] that one of ordinary skill in the art would not be motivated to use the core of Yoshizawa with the antenna disclosed in Davies since the result of that combination would result in an antenna with a *reduced* size. Claim 23 requires an antenna of "*at least* minimum size" to generate an electromagnetic field. In other words, the claimed antenna must be large enough to interrogate and detect EAS markers. Yoshizawa, by contrast, teaches that the antenna should achieve the highest Q value in *the smallest antenna*, which is the exact opposite of what is recited in Appellants['] claims.

(Br. 10.) Despite Appellants' assertion regarding recitation of an antenna Q value limitation, we fail to find *any* recitation directed to Q value in either of

claims 20 or 23. Accordingly, that portion of Appellants' argument is unavailing.

As to Appellants' other contentions, the Examiner responds that:

Such a modification would have been obvious . . . , since Davies et al. provided the motivation for a smaller size antenna in the intended EAS interrogation antenna application by using a solid core versus an air core for the antenna, and Yoshizawa et al. provides teaching of using a amorphous ribbons as a solid core material for an antenna in the manner indicated in the rejection and taught by Yoshizawa et al. that would minimize the antenna size in relation to the antenna's electromagnetic functionality. The rejection did not suggest or indicate to replace the EAS interrogation antenna in Davies et al., with the IC-card- reading antenna of Yoshizawa et al. which is not an EAS interrogation antenna, but rather to implement the teaching of using the amorphous ribbons aspects as an antenna core in the antenna of Yoshizawa et al. to provide the advantages of minimized antenna size and high Q value in Davies et al. in its intended EAS interrogation function, advantages which one skilled in the art would have recognized for the antenna function in Yoshizawa et al. in view of the combined teachings.

(Ans. 12-13.) Based on the record and the Examiner's explanation, we agree with the Examiner's conclusion that it would have been obvious to modify Davies's antenna with Yoshizawa's taught amorphous alloy thin strip material (*see* column 2, lines 5-14) to achieve increased EAS (electronic article surveillance) function.

In the absence of a challenge to the Examiner's response and explanation that we find to be persuasive, we consequently also find that the Examiner did not err in combining Davies and Yoshizawa.

II

Appellants alternatively contend that even if Davies and Yoshizawa are combined, the resulting antenna would not be large enough to generate “an electromagnetic field for interrogation and detection of electronic article surveillance markers” as recited in claim 23 (Br. 11-12). More specifically, Appellants assert that “Yoshizawa stresses a thin-film antenna for use in an IC card interface” so that “combined features of Yoshizawa and Davies . . . would not result in an EAS antenna large enough to operate in an EAS interrogation system” (Br. 11-12).

The Examiner responds that:

Appellants['] argument that Yoshizawa's antenna is not large enough for interrogating an EAS tag is not relevant to the rejection and not persuasive, since the rejection is based on Davies et al. as a primary reference teaching an EAS interrogator antenna, modified by the specific antenna core material of Yoshizawa that makes *antennas smaller for a given electromagnetic field strength*.

(Ans. 14) (emphasis added). Again, based on the record and the Examiner's explanation, we agree with the Examiner's reasoning. (*See also*, Ans. 6, reproduced *supra*.)

In the absence of a challenge to the Examiner's response and explanation that we find to be persuasive, we consequently also find that the Examiner did not err in finding that the combination of Davies and Yoshizawa teaches or suggests an antenna that is large enough to generate “an electromagnetic field for interrogation and detection of electronic article surveillance markers” as recited in claim 23.

For the foregoing reasons, we will sustain the rejection of independent claims 20 and 23, and we, therefore, also will sustain the rejection of the other grouped claims 21, 22, 24, and 25.

Appellants argue against the rejection of claims 28, 29, and 31 as being obvious over Davies, Yoshizawa, and Balch by reliance on the arguments asserted for claim 23 (Br. 14-15). Appellants further contend that “Balch fails to satisfy the deficiencies of Davies and Yoshizawa” (Br. 15). We find the Appellants’ reliance unavailing for the reasons addressed *supra*, and we, accordingly, do not find Balch deficient because we do not find Davies and Yoshizawa deficient. We will sustain the rejection of claims 28, 29, and 31.

Claim 32

We do not agree with the Examiner that Yoshizawa teaches or suggests an antenna having a Q value “less than or equal to about 20” as recited in dependent claim 32.

The Examiner finds:

[T]he claimed Q value of the antenna of less than or equal to about 20 at an EAS operating frequency (Fig. 3 of Yoshizawa et al., whereby a Q value of about 20 or less correspond to an interrogation frequency of about 50 kHz or less, which one skilled in the art at the time of the claimed invention would have readily recognized that operating frequency can be selected as the EAS operating frequency of choice based on factors such as frequencies already operating in the environment of application, FCC regulations, the type of marker used, user preference, etc.).

(Ans. 8.)

In rebuttal, Appellants contend “Yoshizawa discloses a Q-value of ‘25 or more, and preferably 35 or more, and more preferably 40 or more.’ [Yoshizawa, col. 5, lines 58-60]. Thus, even if combined, an antenna as disclosed in Davies using the magnetic core disclosed in Yoshizawa would fail to include all of the elements recited in claim 32, namely a core member having a Q-value ‘less than or equal to about 20’, as recited in claim 32” (Br. 12).

Upon reviewing Yoshizawa, we find Appellants have reproduced what is disclosed by Yoshizawa at column 5, lines 58-60. Further, we find that the Examiner’s reference to Yoshizawa is to Figure 3, a graph showing frequency versus Q-values for three different examples. The Examiner has not identified which example is relied on for the rejection or the reasoning for the selection. Finally, the Examiner’s complete response to Appellants’ contentions regarding Yoshizawa’s disclosures concerning Q-values is that “the rejection clearly establishes how the prior art renders the claimed invention obvious, including the claimed Q value limitation” (Ans. 14). Based on this record, we find that the Appellants have rebutted the rejection.

We will sustain the rejection of claim 32.

Claims 28-31

Appellants argue the patentability of independent claim 28 for the grouped claims, which are rejected as being obvious over Davies, Yoshizawa, and Martinides (Br. 16-17). Appellants rely on the arguments asserted against Davies and Yoshizawa that were also argued for independent claim 23 (*id.*). Appellants further contend that “Martinides fails to satisfy the deficiencies of Davies and Yoshizawa” (Br. 16). We find the Appellants reliance on these arguments to be unavailing for the reasons

addressed *supra*, and we, accordingly, do not find Martinides deficient because we do not find Davies and Yoshizawa deficient. We will sustain the rejection of claims 28-31.

ORDER

The Examiner's decision rejecting claims 20-31 is affirmed, but the Examiner's decision rejecting claims 12-19 and 32 is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(v).

AFFIRMED-IN-PART

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